Economics

Faculty

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Program Overview

Studying Economics provides students with valuable skills that will serve them well in many careers. A BA degree in Economics allows graduates to pursue varied careers in areas such as economic forecasting, economic policy analysis, financial markets and institutions, and public policy. The undergraduate degree in economics also provides a basis for entry into graduate work in Economics, Finance, Business Administration, Law, Political Science, Political Economy, and Public Administration.

Economics is concerned with the fundamental principle upon which human activity revolves — our wants are unlimited while the resources available for their satisfaction are not. Any economic system must determine what is to be produced from these limited resources, and how the resulting output is to be distributed amongst its population. The human organization and economic machinery necessary for the resolution of this problem is a very complex matter, especially in a highly decentralized decision-making society such as our own private enterprise economy. The objectives of the discipline of economics are to explain how an economy works, how well it is performing, and how it may perform better. It may be noted here that economics is the only discipline within the Social Sciences where a Nobel Prize is awarded.

In addressing these concerns economics uses its own approach or manner of thinking. The goal of the Department of Economics is to develop in the student the capacity to "think like an economist". To achieve this objective requires that our students become familiar with disciplined economic reasoning and therefore familiar with the analytical tools of economic science. The process involves the development of both problem-solving and creative skills. These attributes, in turn, increase the understanding of present-day economic phenomena as well as promoting effective predictions of the consequences of changes in our evolving world. The student is prepared for the present and forearmed for the future.

The breadth of programs available allows students to tailor their studies in line with their objectives. Choices may be made from the outline below in honours, major, minor, and joint programs such as International Political Economy.

Entrance Requirements

1. Admission

Rules and regulations for admission into degree programs in Economics are detailed in the section of this Calendar entitled "Admission and Registration" with the following additional specification:

a) Mathematics

(i)   MAT 196 and MAT 197 (or their equivalent) are required courses for all Economics programs except the Minor and B.A. (Major in International Political Economy).*

(ii) MAT 191 or MAT 192 (or their equivalent) are required courses for B.A. (Honours Economics).

A student having a Québec Collegial Diploma (D.E.C.) including Mathematics 201-NYC (201-105) and Mathematics 201-NYA (201-103) may be exempted from MAT 196 and MAT 197. OAC Calculus, with 70%, is equivalent to MAT 197. Students granted exemption must substitute these courses with free elective courses. Students lacking the appropriate preparation for MAT 191 or MAT 197 will be required to take an additional credit course MAT 190.

*Note that MAT 196 and MAT 197 are prerequisites for ECO

b) Statistics

Students are also required to have completed a course in Introductory Statistics, equivalent to BMA 140 as a prerequisite for all Economics programs. Students who are required to take BMA 140 will use this course as a free elective.

2. Transfers from Other Bishop's Programs

To be eligible to transfer into any Major or Honours program in Economics, including joint programs with Political Studies, from a non-Economics program, a student normally must have successfully completed at least 30 credits at Bishop's, and have achieved a minimum cumulative average of 65% based on all courses attempted, or an average of 65% in all Economics courses attempted (minimum of 12 credits).

3. Double Failure Rule

Any student who twice receives a failing grade in a course offered by the Department of Economics will not be permitted to repeat the course again. If this is an economics course that is required in order to graduate from a degree program offered by the Department of Economics (Economics Honours, Economics Major, Economics Minor), the student will not be eligible to graduate with that degree. This regulation applies to students in non-economics programs where an economics course is required to complete their degree. This implies that having twice received a failing grade in the same economics course at Bishop's precludes a student from receiving transfer credits for the same course.

Programs in Economics

Honours Economics (63 credits)   HONECO

The Honours B.A. program in Economics consists of 120 credits + ILT104 (1 lab credit). In order to register in the Honours program students must have completed at least 12 credits in ECO, BMA or EMA (Quantitative Methods) courses. In order to graduate with an Honours B.A. degree in Economics, students must maintain an average of at least 75% in all ECO and EMA courses. Requirements of the program are:

Quantitative Methods	6 credits
Mathematics	9 credits
Required courses in Economics	24 credits
Elective courses in Economics**	24 credits
Free Electives*	57 credits
Total	**120 credits + ILT104 (1 lab credit)**

For students in higher-credit programs, the number of credits in this category are adjusted accordingly. At least 12 credits in this category must be earned outside of the Department of Economics.

*** Up to 9 of the total required credits in this category can be met, with departmental approval, by a selection of courses in cognate areas.*

Information Retrieval
ILT 104   Information Retrieval and Evaluation Skills for the Social Sciences

Quantitative Methods
BMA141   Statistical Analysis for Business Decisions II
EMA 261   Econometrics I

Mathematics
MAT 196   Finite Mathematics for Business Students
plus:
MAT 191   Calculus I
MAT 192   Calculus II
OR
MAT 197   Calculus for Business and Economics and
EMA 262   Mathematical Economics

Required courses in Economics
ECO 102   Principles of Economics: Microeconomics
ECO 103   Principles of Economics: Macroeconomics
ECO 208   Intermediate Microeconomics I
ECO 209   Intermediate Microeconomics II
ECO 212   Intermediate Macroeconomics
ECO 342   Advanced Macroeconomics
ECO 343   Advanced Microeconomics
ECO 361   Applied Economic Analysis

For those Economics Honours students who intend to proceed to graduate school, the following additional courses in Mathematics are strongly recommended:

MAT 206   Advanced Calculus I
MAT 207   Advanced Calculus II
MAT108   Matrix Algebra
MAT 209   Linear Algebra
MAT 313   Introduction to Probability
MAT 314   Introduction to Mathematical Statistics

As well, it is strongly recommended that these students take additional courses in Mathematics as electives. Students should also consider a Minor in Mathematics.

Major Economics (45 credits)   MAJECO

The Major B.A. program in Economics consists of 120 credits + ILT 104 (1 lab credit). Requirements of the program are:

Mathematics	6 credits
Quantitative Methods	6 credits
Required courses in Economics	15 credits
Elective courses in Economics*	18 credits
Free Electives**	75 credits
Total	**120 credits + ILT 104 (1 lab credit)**

Up to 6 of the total required credits in this category can be met, with departmental approval, by a selection of courses in cognate areas.

***For students in higher-credit programs, the number of credits in this category are adjusted accordingly. At least 15 credits in this category must be earned outside of the Department of Economics.*

Information Retrieval
ILT 104   Information Retrieval and Evaluation Skills for the Social Sciences

Mathematics (6 credits)
MAT 196   Finite Mathematics for Business Students
MAT 197   Calculus for Business and Economics **OR**
MAT 191   Calculus I

Quantitative Methods (6 credits)
BMA 141   Statistical Analysis for Business Decisions II
EMA 261   Econometrics I

Required Courses in Economics (15 credits)
ECO 102   Principles of Economics: Microeconomics
ECO 103   Principles of Economics: Macroeconomics
ECO 208   Intermediate Microeconomics I
ECO 212   Intermediate Macroeconomics
ECO 361   Applied Economic Analysis

Concentrations in Economics

Students wishing to develop expertise in specific areas of Economics can elect to follow a concentration according to the following:

Concentration in Business Economics   MAJECB

Any six of the following:
ECO 105   Behavioural Economics
ECO 200   Money and Banking
ECO 204   Labour Economics
ECO 217   International Economics
ECO 270   Public Economics
ECO 305   Game Theory
ECO 308   Managerial Economics
ECO 322   Real Estate Economics
With departmental approval, students can satisfy up to 6 of the 18-credit requirement from courses in Business

Concentration in Public Policy   MAJECP

Any six of the following
ECO 105   Behavioural Economics
ECO 126   Economics of Crime and Criminal Justice
ECO 204   Labour Economics
ECO 217   International Economics
ECO 237   Economics of the Environment
ECO 270   Public Economics
ECO 336   Contemporary Economic Issues
ECO 337   Ecological Economics
With departmental approval, students can satisfy up to 6 of the 18-credit requirement from courses in other disciplines

Concentration in Global Economy   MAJECG

Any six of the following:
ECO 125   Economic Development I: Human Development Problems and Policies
ECO 175   Economic Geography
ECO 180   Contemporary Perspectives in Political Economy
ECO 217   International Economics
ECO 225   Economic Development II: Macroeconomic and Policy Issues
ECO 237   Economics of the Environment
ECO 180   Contemporary Perspectives in Political Economy
ECO 337   Ecological Economics
With departmental approval, students can satisfy up to 6 of the 18-credit requirement from courses in other disciplines

Minor in Economics
(24 credits)   MINECO

A minor in Economics consists of any 24 credits* in Economics including ECO 102 and ECO 103, plus ILT 104 or its equivalent. Students considering a minor in Economics should consult the Chairperson of the Department. If Economics is required as a Cognate in another program, economics courses so taken will also be counted towards the minor. The course BMA 141: Statistical Analysis for Business Decisions II can be included within the required 24 credits.

Up to 3 of the total required credits in this category can be met, with departmental approval, by a selection of courses in cognate areas such as Business Administration, Mathematics, Computer Science, and Political Studies.

Honours in International
Political Economy (60 credits)   HONPEC

These programs are offered jointly by the Departments of Economics and Politics and International Studies. As an area of academic inquiry, International Political Economy examines the relations between modes of production and distribution in the private and public spheres. Note that, in light of the impacts of globalization pressures on the political economies of the state, these programs have a decidedly international focus.

The Honours program in International Political Economy consists of at least 60 credits, with 30 credits drawn from Politics and International Studies and 30 from Economics.

To enter or continue in an Honours program, students must normally obtain and sustain a cumulative average of 75 % in the Politics and International Studies and Economics courses. Honours students who do not fulfill the above requirements will automatically revert to the Major program. To be awarded Honours at graduation, students must be registered in the Honours program at Bishop's during their last thirty (30) credits of study. Honours standing at graduation will be determined by the students overall record in the Honours program.

Economics Requirements (30 credits)

Required Courses in Economics (15 credits):
ECO 102   Principles of Economics: Microeconomics
ECO 103   Principles of Economics: Macroeconomics
ECO 212   Intermediate Macroeconomics
ECO 270   Public Economics

One of the following courses:
ECO 125   Economic Development I: Human Development Problems and Policies
ECO 175   Economic Geography
ECO 180   Contemporary Perspectives in Political Economy
ECO 217   International Economics
ECO 251   History of Economic Thought I

Elective Courses in Economics (15 credits):
The remaining 15 credits to be taken from any area of Economics

Politics and International Studies Requirements (30 credits)

Required Courses:

POL 101	Introduction to Comparative Politics
POL 140	Introduction to International Relations
POL 240	International Political Economy
POL 361	Techniques of Empirical Research

Plus two of:

POL 229	History of Political Philosophy - Modern
POL 235	American Political Economy
POL 241	International Affairs
POL 242	International Organizations
POL 317	Globalization and the Canadian State
POL 344	Politics of International Trade and Investment
POL 346	Politics of Global Finance

Plus:

One POL 400 level course

Plus Free Elective Courses in Politics and International Studies:

9 credits (3 POL courses)

Note that some of these courses may have prerequisites or, alternatively, require permission from the instructor.

To enter and remain in the Honours program, students must normally attain a cumulative average of 75% in program courses. Honours students who do not meet this average requirement at graduation will automatically revert to the Major program.

Major in International Political Economy
(48 credits)   MAJPEC

The B.A. Major Program in International Political Economy consists of at least 48 credits, with 24 credits drawn from Politics and International Studies and 24 from Economics.

Economics Requirements (24 credits)

Required Courses in Economics (9 credits):

ECO 102	Principles of Economics: Microeconomics
ECO 103	Principles of Economics: Macroeconomics

One of the following courses:

ECO 125	Economic Development I: Human Development Problems and Policies
ECO 175	Economic Geography
ECO 180	Contemporary Perspectives in Political Economy
ECO 217	International Economics
ECO 251	History of Economic Thought I
ECO 270	Public Economics

Elective Courses in Economics (15 credits):

The remaining 15 credits to be taken from any area of Economics

Politics and International Studies Requirements (24 credits)

Required Courses:

POL 101	Introduction to Comparative Politics
POL 140	Introduction to International Relations
POL 240	International Political Economy

Plus two of:

POL 229	History of Political Philosophy - Modern
POL 235	American Political Economy
POL 241	International Affairs
POL 242	International Organizations
POL 317	Globalization and the Canadian State
POL 344	Politics of International Trade and Investment
POL 346	Politics of Global Finance

Plus Free Elective Courses in Politics and International Studies:

9 credits (3 POL courses)

Note that some of these courses may have pre-requisites or, alternatively, require permission from the instructor.

List of Courses

ECO 100   Economic Life/ Economic Society   3-3-0
An historical and descriptive approach to understanding how economic activity and the modern economy can be understood from the broader social context in which human beings interact. The course provides an introduction to the study of economic relationships and economic society.

ECO 102   Principles of Economics: Microeconomics   3-3-0
A general introduction to the study of Economics and the nature of economic problems. Of primary concern is the behaviour of individual consumers and firms in particular markets, and the results of their actions as they appear in production, sales, costs, prices, wages, interest and profits.

ECO 103   Principles of Economics: Macroeconomics   3-3-0
A general introduction to the study of Economics and the nature of economic problems. The course is largely concerned with the determinants of the level of national income, employment and the accompanying stabilization problems — all in a Canadian context.

ECO 105   Behavioural Economics   3-3-0
This course introduces students to the relatively new field of behavioural economics. It goes beyond the rational behaviour seen in typical economics courses and studies models that are combined with psychologically plausible assumptions of behaviour. Topics will include choice under risk and uncertainty, bounded rationality, intertemporal choice, behavioural choice, behavioural game theory, procrastination, altruism, and reciprocity.

ECO 109   Economic Policy   3-3-0
Economics is studied for its policy implications. This course will examine problems, policies, institutions, and controversies in public policy regarding the economy in Canada from both an analytical and a historical perspective.

ECO 115   The Making of Economic Society   3-3-0
A non-technical introduction to the history of the development of the modern market economy, from its beginnings in Medieval Europe up to the Twenty-first Century. An exploration of the economic events, resources, institutions, ideas and technologies that have shaped the evolution of Western civilization and led to the westernization of the global economy.

ECO 118   Canadian Economic Development I   3-3-0
A study of historical factors which have determined Canada's present economic structure, from the first penetration of European civilization into what is now the territory of Canada, to the dawn of the 20th century. Topics include the staple export industries (e.g. fur, fish, lumber, wheat, minerals, newsprint, energy), agriculture, changes in technology, state administration and policy, foreign investment.

ECO 119   Canadian Economic Development II   3-3-0
A study of historical factors of the 20th century which have shaped the development of the modern Canadian economy including staple industries, agriculture, energy, crown corporations and other financial and political institutions, federal-provincial relations, regionalism, industrial organization, technical change, foreign investment and transnational firms, international trade, and globalization.
Prerequisites: ECO 102

ECO 125   Economic Development I:
Human Development Problems and Policies   3-3-0
The course provides an introduction to the concept of economic development and an analysis of domestic problems facing developing countries, including poverty and inequality, population growth, education, rural development, unemployment, and the environment.

ECO 126   Economics of Crime and Criminal Justice   3-3-0
This course discusses the economic elements underlying the behaviour of criminals, victims, and law enforcement agencies. Major topics covered include the supply of crime by criminals, the demand for crime prevention by victims, and public policy issues like crime control, and the allocation of criminal justice resources.

ECO 131   A History of Major Economic Events:
1750 to the present   3-3-0
This course is a non-technical introduction to some of the basic concepts of economics through an historical review of the most important economic events of the last two hundred years. A variety of topics are discussed from the Industrial Revolution in Great Britain, the Great Depression, the construction of Europe, to the most recent Financial Crises that led to the Great Recession. Special attention is given to the parallels that can be drawn from past economic events with current ones.

ECO 175   Economic Geography   3-3-0
The production of, and trade in, goods and services vary by city, region, and country. In recent years, these spatial variations have widened in some cases, and narrowed in others. But common to all are the drivers-of-change. These include major geo-political events, the adoption of innovative cost-saving practices, and the creation and evolution of entrepreneurial networks and industrial clusters. This course will explore the key elements of these dynamics, and explore the ongoing debate about the appropriate role of government in an increasingly-globalized world.
This course is cross-listed with ESG 175.

ECO 180   Contemporary Perspectives in Political Economy   3-3-0
This course develops core contemporary perspectives in political economy within an international context. This course is neither a course in political science nor a course in economics, but rather a course that stresses the interaction of the two disciplines.
Students who received credit for ECO280 cannot receive credit for ECO180

ECO 200   Money and Banking   3-3-0
Nature and functions of money and credit, financial institutions, commercial and central banking in the Canadian economy. Aims, instruments, and effectiveness of monetary policy.
Prerequisite: ECO 103

ECO 204   Labour Economics   3-3-0
An analysis of the demand for and the supply of labor, wage differentials, and wage structures, as well as an analysis of the effects of unions, and the rationale for current supply-side or passive employment policies in Canada and other OECD countries.
Prerequisites: ECO 102

ECO 206   Agricultural Economics   3-3-0
Application of microeconomics principles to the problems of agricultural production and resource use, agricultural supply and demand analysis, price determination, market structure and income distribution in competitive and imperfectly competitive markets.
Prerequisites: ECO 102, ECO 103

ECO 208   Intermediate Microeconomics I   3-3-0
Consumer theory, production and cost theory, output and price determination by market structures, introduction to game theory, general equilibrium analysis, choice under uncertainty and imperfect information.
Prerequisites: ECO 102, MAT 196 and MAT 197 or equivalent.

ECO 209   Intermediate Microeconomics II   3-3-0
Consumer Theory, Decision Theory under Risk and Uncertainty, Information, and Microeconomic applications.
Prerequisites ECO 208

ECO 210   Economics and the Law   3-3-0
An introduction to the application of economic principles and methodology to a variety of legal problems with particular emphasis on the theory of property rights and the allocation of resources. Problems under imperfect information, such as the principal-agent problem, the "market for lemons," job market signaling and screening, are also discussed.
Prerequisite: ECO 102

ECO 212   Intermediate Macroeconomics   3-3-0
This course examines business cycles, monetary and fiscal stabilization policies, unemployment and labour market frictions, inflation, exchange rate determination, exchange rate systems, and introduction to economic growth.
Prerequisites: ECO 103

ECO 217   International Economics   3-3-0
The course provides an introduction to international economics. The first half of the course examines trade theory and policy, including the Classical and modern theories of international trade, policies restricting trade, and international trade liberalization. The second half of the course examines international monetary economics, including foreign exchange markets, exchange rate determination, and open-economy macroeconomic policy.
Prerequisites: ECO 102 and ECO 103

ECO 224   Sports Economics   3-3-0
The course applies microeconomic principles to analyze sports. Among the topics covered are the market for sports, the market for talent, pricing decisions, labour relations, and the role of public policy. The field draws from several important subfields of microeconomics, including game theory, industrial organization, public economics, labour economics, and the economics of information.
Prerequisites: ECO 102

ECO 225   Economic Development II:
Macroeconomic and Policy Issues   3-3-0
An introduction to models of economic growth. An analysis of international issues facing developing countries: international trade and trade policy, foreign inventment and foreign aid, the balance of payments, and third world debt. An introduction to the techniques of evaluating development projects.
Prerequisites: ECO 102 and ECO 103

ECO 236   Contemporary Economic Issues   3-3-0
Application of tools of economic analysis to selected issues and problems in Canada.

ECO 237   Economics of the Environment   3-3-0
Application of concepts and methods of economic analysis to environmental problems. Pros and cons of selected policies for environmental protection. Economic growth and environmental decay. Private vs social costs of environmental decay.

ECO 251   History of Economic Thought I   3-3-0
An introductory analysis of the methodological foundations of the more prominent schools of thought within mainstream Economics. This is a seminar course, and students are required to prepare one or more essays.
Prerequisites: ECO 102 and ECO 103
Offered in rotation with ECO 180

ECO 260   Topics of Applied Economics   3-3-0
Content of this course varies year by year. The topics are determined by the instructor of the course. A writing component is emphasized in this course.
Prerequisite: ECO 102, ECO 103

ECO 270   Public Economics   3-3-0
This course examines key policy issues related to government expenditure and taxation. Topics covered include the rationale for government provision of goods in a market economy, public choice, fiscal federalism, cost-benefit analysis, and an analysis of tax incidence and efficiency.
Prerequisites: ECO 102

ECO 305   Game Theory with Applications to Economics   3-3-0
Game Theory studies the causes and consequences of the actions of decision-makers who are aware that their choices affect each other. The theory includes: non-cooperative games, cooperation and reputation, and dynamic games. Applications include: bargaining, auctions, industrial organization, asymmetric information, and social choice theory (the economics of democratic institutions).
Prerequisites ECO 208

ECO 308   Managerial Economics   3-3-0
An introduction to the principal topics in managerial economics. These include decision-making under uncertainty, demand analysis and estimation, cost analysis and estimation, and pricing theory and practices.
Prerequisites: ECO 208 and BMA 141

ECO 310   **Economics Internship**   **3-0-0**

The Economics Internship provides an opportunity for a continuing student to gain valuable experience working alongside professional economists. The internship is subject to acceptance and supervision by the Department of Economics and by the participating institution. The participating institution can be located outside of the Lennoxville/Sherbrooke community, and thus may require the student to reside in another city. The internship takes place over some or all of the summer months.

ECO 322   **Real Estate Economics**   **3-3-0**

This course provides students with an understanding of two essential components to real estate analysis. First, it introduces the techniques of investment and statistical analysis in a real estate valuation context. Topics here include: cash flow analysis, discounting, and compounding. Second, it looks at the economics behind real estate price fluctuations. Topics here include: factors affecting the demand for real estate, and the relationship between land use, land value, and location.
Prerequisite: ECO 102

ECO 336   **Contemporary Economic Issues**   **3-3-0**

Application of tools of economic analysis to selected issues and problems in Canada.
Prerequisites: ECO 102 and ECO 103

ECO 337   **Ecological Economics**   **3-3-0**

This course explores the principles underlying a truly sustainable ecological economy in a "full world". Topics such as sustainability, the nature of work, quality in production and consumption, ecological cost, peak oil, inequality, the scale and distribution of economic activity, and the purpose of economic activity and economic development are entertained. Seminar course in which student presentations feature prominently. Intended for students who have completed at least 45 credits at the university, including at least 12 in economics.
Prerequisites: ECO 102 and ECO 103

ECO 342   **Advanced Macroeconomics**   **3-3-0**

Selected topics in theoretical and applied macroeconomics, including growth theory, real business cycles, new Keynesian models of fluctuations, consumption, investment, unemployment, monetary policy, and fiscal policy.
Prerequisites: ECO 212, EMA 261 and EMA 262 or equivalent

ECO 343   **Advanced Microeconomics**   **3-3-0**

A selection of core topics from Microeconomics, including unconstrained and constrained optimization, direct and indirect utility functions, duality in consumption and production, the expenditure function, ordinary and compensated demand functions, the Slutsky equation, the Envelope Theorem, Roy's Identity, Hotelling's Lemma, and the Expected Utility Hypothesis.
Prerequisite: ECO 209, EMA 261 and EMA 262 or equivalent

ECO 344   **Independent Study**   **3-0-0**

Individual study and research under the guidance of an advisor.
Prerequisites: Permission of the Department and instructor. ECO 208, ECO 212

ECO 345   **Independent Study**   **3-0-0**

Individual study and research under the guidance of an advisor.
Prerequisites: Permission of the Department and instructor. ECO 208, ECO 212

ECO 351   **History of Economic Thought II**   **3-3-0**

An advanced analysis of the methodological foundations of the more prominent schools of thought within mainstream Economics. This is a seminar course, and students are required to prepare one or more essays.
Prerequisite: ECO 102 and ECO 103, and ECO 251

ECO 361   **Applied Economic Analysis**   **3-3-0**

The purpose of this course is to provide students with a basic understanding of conducting applied economic analysis. It builds upon the student's knowledge of basic econometrics and allows him/her to use this knowledge to analyze real-world data and undertake original empirical analyses. Written and oral dissemination of results is also emphasized as important skills.
Prerequisite: EMA261, ECO 208, ECO 212

ECO 365   **Honours Seminar**   **3-3-0**

The purpose of this course is to prepare the student for advanced economic research leading up to original empirical and/or theoretical research undertaken by the student for his/her honours thesis and for research undertaken at the graduate level and beyond. Areas covered include: selection of a research topic, literature survey, theoretical and empirical analyses including model building, formulation of a research question and hypothesis, and testing hypotheses.
Prerequisite: ECO 209, EMA 261

ECO 370   **Honours Thesis**   **3-0-0**

Continuation of ECO 360. Under the supervision of a faculty member of the Department of Economics, the student in the final year of his Honours program will complete the research agenda developed in ECO 360. The student will present the research results in a seminar to be scheduled in the last two weeks of class.
Prerequisite: ECO 365

Courses for Mathematics

BMA 140   **Statistical Analysis for Business Decisions I**   **3-3-0**

Data summarization: frequency distributions, measures of central tendency and variability; probability; introduction to statistical decision analysis; discrete probability distributions: binomial, Poisson probability distributions; continuous probability distributions: normal, uniform and exponential probability distributions.
Prerequisite: MAT 196

BMA 141   **Statistical Analysis for Business Decisions II**   **3-3-0**

Topics include: Sampling methods and sampling distributions; statistical inference; estimation and hypothesis testing; simple linear regression and correlation; multiple and curvilinear regression; chi-square tests for independence and goodness-of-fit; introduction to analysis of variance; nonparametric tests.
Prerequisite: BMA 140 or equivalent, or MAT 197
Note: this course may not be taken for credit by Science students.

EMA 261   **Econometrics I**   **3-3-0**

An introduction to econometrics. Topics include the classical assumptions, ordinary and generalized least squares estimation, hypothesis testing, the statistical implications of violating of the classical assumptions, common remedial measures, and the distributed lag and autoregressive models.
Prerequisite: ECO 102, ECO 103, and BMA 141

EMA 262   **Mathematical Economics I**   **3-3-0**

The application of matrix algebra and multivariate calculus to model-building and problem-solving in Economics.
Prerequisites: ECO 102, ECO 103, MAT 196 and MAT 192 or MAT 197
Cross-listed with MAT 172

EMA 265   **Applied Time Series Analysis**   **3-3-0**

This course provides an introduction to applied time series analysis. Students learn skills required for empirical analysis with time series data, with particular emphasis on macroeconomic and financial economic analysis and forecasting. Topics include autocorrelation, stationary and non-stationary time series models, autoregressive models, ARMA and ARIMA models, VAR models, VECM models, ARCH models. Econometric software is used.
Prerequisites: BMA 141 or equivalent

EMA 361   **Econometrics II**   **3-3-0**

Ordinary and generalized least squares estimation, and hypothesis testing, using matrix algebra. Additional topics include simultaneous-equation estimation, the identification problem, two-stage least squares estimation, a stationary series, the unit-root test, spurious regression, the Granger causality test, cointegration, and the error-correction model.
Prerequisites: EMA 261, ECO 208, ECO 212

EMA 362   **Mathematical Economics II**   **3-3-0**

The application of differential and difference equations, and mathematical programming, to model-building and problem-solving in Economics.
Prerequisites: EMA 262, ECO 208, ECO 212

ILT 104   **Information Retrieval and Evaluation Skills**
          for the Social Sciences (Lab)   **1-0-1**

The objective of this laboratory course is to introduce students to the skills necessary to effectively complete their research assignments, including the correct use of library resources such as the online catalogue, periodical indexes and other relevant databases. Other areas of study include the identification of key terms for effective searching, productive use of the internet and the critical evaluation of retrieved resources. Academic integrity, plagiarism and the correct citation of print and online sources are also covered. Taught in conjunction with a research-based course, the specific resources relevant to research in the Social Sciences are introduced, and the students retrieve the material necessary to complete the essays for their particular course. The course is taught in the library's electronic classroom, and each week the students are given the opportunity for practical experience.
Equivalent to ILT 100 or ILT 102 as part of the Economics Honours, Major, and Minor programs.

Cognate Courses

A number of cognate courses may be taken in such areas as Business Administration, Mathematics, Computer Science, Environment and Geography and Political Studies. Consult the Chairman of the Department for the full range of possibilities.